# CompSlam Robot

## Camera:

Compressed cameras (cam0–cam2):
Format: mono8; JPEG compressed
Data size: 44 KB per frame
Resolution: 720 × 540 pixels
Encoding: bgr8
Step: 2160 = 720 pixels × 3 bytes (BGR) per pixel
So the cameras are 0.39 MP (720×540), relatively low-res but at high frequency (the compressed ones are 20 Hz)

## IMU:

IMU linear_acceleration: x: -0.1461865234375 y: 0.10240234375000001 z: 9.6662548828125
IMU angular_velocity: x: 0.0031958908389434415 y: 0.004580776869152266 z: -0.0015979454194717212
IMU frame_id: imu_sensor_frame

## LiDAR:

Model: Velodyne VLP-16 (ID=0x22)
Return mode: Dual (0x37)
Unique rings: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15]
Number of rays: 16
Min range: 0.500 m
Max range: 82.026 m
Total points/scan: 22248

# Our Robot

## Camera:

Cameras (cam0):
Format: mono8; JPEG compressed
Resolution: 640×480 pixels
So the cameras are 20 Hz

## IMU:

IMU linear_acceleration: x y z
IMU angular_velocity: x y z
IMU frame_id: imu_sensor_frame

## LiDAR:

Model: LDS-01
Unique rings: [0]
0
Number of rays: 1
Min range: 0.1 m
Max range: 12
Total points/scan: 360

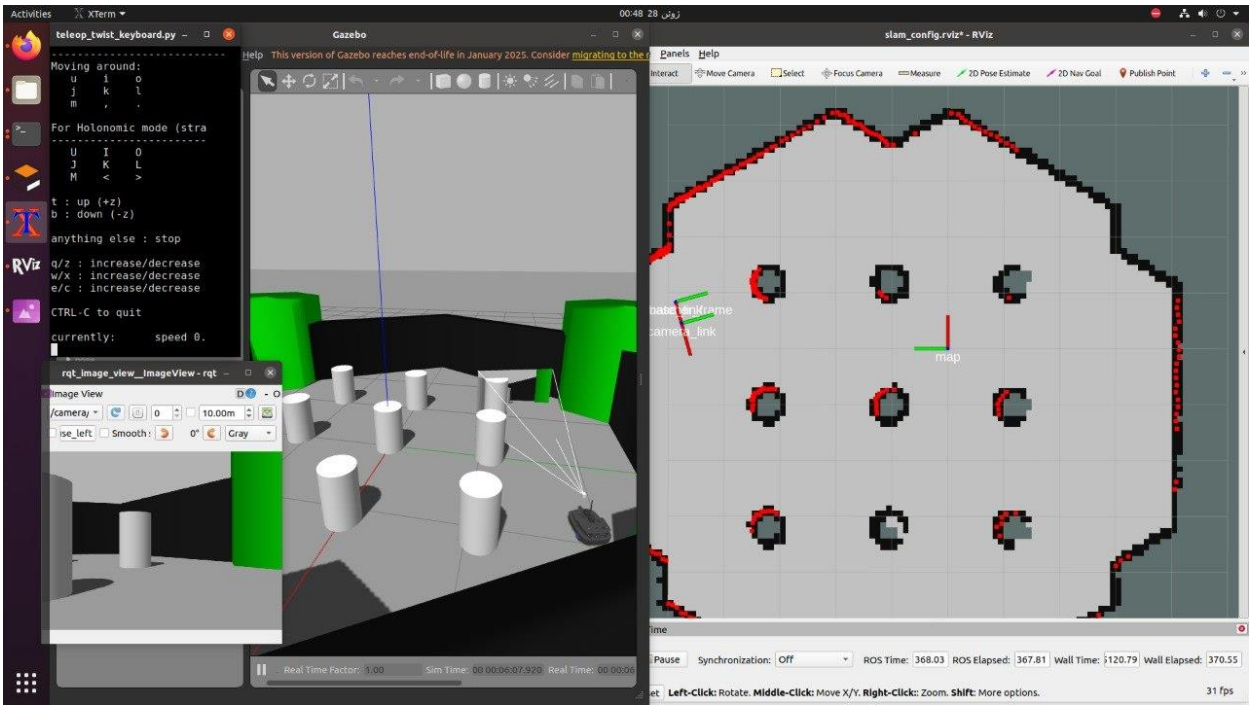
# Changes

**1.compslam_vtio/config/cam0.yaml**
image_width:
image_height:
camera_matrix:
  rows: 3
  cols: 3
  data: [fx, 0, cx, 0, fy, cy, 0, 0, 1]
distortion_model: plumb_bob
distortion_coefficients:
  rows: 1
  cols: 4
  data: [k1, k2, p1, p2]

**2. compslam_vtio/config/compslam_vtio.info**
camera-to-IMU extrinsics (qCM rotation, MrMC translation).

**3. compslam_vtio/launch/compslam_vtio.launch**
the main wiring change:
xml
<arg name="cam0_input_topic" default="/our_camera/image_raw"/>
<arg name="imu_input_topic"  default="/our_imu/data"/>

two things **remove**
The lidar_input_topic remap + lidar_frame_name param
The bottom republish node that decompresses /alphasense_driver_ros/cam0


Activities
XTerm
00:48 28 ژوئن
teleop_twist_keyboard.py
Moving around:
u i o
j k l
m , .
For Holonomic mode (stra
U I O
J K L
M < >
t : up (+z)
b : down (-z)
anything else : stop
q/z : increase/decrease
w/x : increase/decrease
e/c : increase/decrease
CTRL-C to quit
currently: speed 0.
Gazebo
This version of Gazebo reaches end-of-life in January 2025. Consider migrating to the
rqt_image_view__ImageView - rqt
Image View
/camera/
10.00m
Smooth:
Gray
Real Time Factor: 1.00
Sim Time: 00 00:06:07.920
Real Time: 00 00:06
slam_config.rviz* - RViz
Panels
Help
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
camera_link
map
Pause
Synchronization:
Off
ROS Time: 368.03
ROS Elapsed: 367.81
Wall Time: 5120.79
Wall Elapsed: 370.55
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click:: Zoom. Shift: More options.
31 fps